

## DETERMINATION OF AKBAŞ SHEPHERD DOG RAISED IN TURKEY

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### ABSTRACT

This study was carried out to determine the body measurements of the Turkish Akbaş Shepherd Dogs raised in provinces of Afyon, Ankara, Eskişehir and Manisa by comparing with some other dog breeds of Turkey by minding factors of sex, region and age. For this purpose, a total of 59 (34 male and 25 female) dogs was included in the study and the data were statistically analysed. Descriptive statistics and comparison results for live weight  $44.9 \pm 0.80$  kg, and height at shoulders  $75.3 \pm 0.59$ , height at rump  $74.2 \pm 0.64$ , body length  $81.8 \pm 1.00$ , heart girth circumference  $86.5 \pm 0.81$ , chest width  $32.6 \pm 0.33$ , and cannon circumference  $13.3 \pm 0.13$  cm respectively. The overall results of the study showed that Turkish Akbaş Shepherd dogs had a very close resemblance to the Turkish Kangal (Karabash) and Kars (Caucasian) Shepherd dogs related with body measurements. The Akbaş Shepherd dogs reach mature body weight and size at around 2 years of age. The current study also demonstrated that the Turkish Akbaş Shepherd dogs raised in provinces of Afyon and Manisa are smaller than dogs raised in Ankara and Eskişehir.

**Keywords:** Akbash, native dog breed, phenotypic trait, live weight, body measurements.

### 1. Introduction

The dog is the first domesticated animal in prehistoric times but there is no full agreement on where and when dogs (*Canis familiaris*) originated (Clutton-Brock 1995; Serpell 1996). A genetic evidence for East Asian origin of domestic dog was found in China about 15.000 years ago (Savolainen et al. 2002). In Turkey, Belli (2006) reported that hunting seen with dog about 15.000 years ago rock carving in village of Çallı, county of Kağızman, province of Kars, Turkey. Belli revealed that the rock carving showed that dogs used to use to hunt deer and/or wild goats in ancient times (Yılmaz 2007a).

There are more than 400 dog breeds in the world and this number increases every year (Pugnetti 2011). Among the dog species, livestock protection dogs are bred to defend people and their possessions (Yılmaz 2006). They are generally large, rugged and impressive in body size. They possess great endurance and agility. The livestock protection dogs are tall and powerful, yet not massive in build. This magnificent ancient working dog presents an impression of functional utility without exaggerated features. Large size is important, but correct breed type, soundness of movement, overall balance with correct temperament should be given precedence so as to preserve working ability. Flock guardian dogs show an alert, territorial and protective temperament of sheep and goats and their human family. Their possessive natural protective instinct is calm, noble, courageous, steady, intelligent, sensitive and affectionate with its own family and flock, loyal, proud, self-assured and independent. (Sims & Dawydiak 1990; Yılmaz 2006).

In Turkey there are about 10 native dog breeds. One of them is common and others are local breeds listed in Table 1. Three of 10 dog breeds are livestock guardian dogs. The Türk Kangal 'Karabaş' Çoban (TKnÇ) (Turkish Kangal 'Karabash' Shepherd) is the most known and common dog breed of Turkey. It is almost not only spread all nationwide of Turkey, but also all over the world. TKnÇ is raised in all continentals except South America. Other dog breeds of Turkey are generally local breeds. The Türk Akbaş Çoban (TAÇ) (Turkish Akbash Shepherd) is located (Figure 1) in the Salt Lake (Tuz Gölü) region in provinces of Ankara, Afyon, Eskişehir and Manisa.

The Kars ‘Kafkasya’ Çoban (TKrÇ) and Dikkulak (Erect-ear) or Zağar dogs are mainly seen in the same region, east of Turkey (Tepeli et al. 2003; Yılmaz 2007a).



Figure 1. A good example of Turkish Akbaş Shepherd dog with cropped ears.

The Türk Tazısı (Turkish Sighthound) can be found in some provinces but it is mainly raised in Konya and Şanlıurfa. The Tarsus Çatalburun (Fork-nose) is a pointer type gun dog and only found in province of İçel.

Table 1. Some morphological traits on various Turkish Breeds of dogs.

	Rt67	HS (cm)	HR (cm)	BL (cm)	HGC	CD (cm)	CC (cm)
TKnÇ* (Yılmaz 2007 <sup>b</sup> )	45.9	74.8	73.8	84.5	86.2	31.6	13.2
TAÇ* (TSE 2002)		45-65(♂)	60-85(♂)				
		35-55(♀)	50-75(♀)				
TKrÇ* (Yılmaz & Ertuğrul 2012 <sup>b</sup> )	44.6	72.4	71.1	87.3	84.7	31.3	12.0
TT* (Yılmaz & Ertuğrul 2011 <sup>a</sup> )	18.4	62.0	62.2	60.3	63.3	22.8	10.2
TÇ* (Yılmaz & Ertuğrul 2011 <sup>b</sup> )	21.7	48.5	48.5	49.1	64.0	20.8	10.5
D/Z* (Yılmaz & Ertuğrul 2011 <sup>c</sup> )	10.6	27.8	29.1	46.3	50.9	21.8	9.5

TKnÇ: Türk Kangal Çoban, TAÇ: Türk Akbaş Çoban, TKrÇ: Türk Kars Çoban, TT: Türk Tazısı, TÇ: Tarsus Çatalburun, D/Z: Dikkulak/Zağar, LW: live weight, HS: height at shoulders, HR: height at rump, BL: body length, HGC: hearth girth circumferences, CD: chest depth, CC:cannon circumferences,

\* There were no significant differences between means showed by the same letters of alphabet in the same line and factor group.

In province of Karaman and adjacent provinces there is a breed of Karaman dog. In the northeast of Turkey there are also three local dog breeds on the north side of Canik Mountains. The first one is the Zerdava (Kapı) dog which is a working dog in medium size. The second one is Tonya Finosu (Kobi) in province of Trabzon. This breed is a small size toy dog. The last one is Koyun (Sheep) dog which is another flock protection dog breed especially in provinces of Rize and adjacent provinces (Yılmaz 2006; Yılmaz 2007b; Yılmaz 2008; Yılmaz & Ertuğrul 2011a-d; Yılmaz & Ertuğrul 2012a-d).

TAÇ dog is a protecting dog with a flock of sheep and goat. This breed is not a herding dog. Main duty of TAS dog is to protect the flock, its owner/shepherd and his property from predators

and to avoid intruders. The TAS dog has a strong body constitution. Only white coat colour can be seen. TAÇ dogs are very trustable, agile, healthy and tough dogs (Yılmaz 2007a; Yılmaz 2008). Although the Akbaş dogs are primarily found in provinces of Ankara, Afyon, and Eskişehir which is called as “The Akbaş Dog Triangle” they can also be found in other parts of Turkey such as Ağrı (Belli 2009), Sivas and Tunceli (pers. obs.). Sometimes The Akbaş Dogs are thought as a colour variation of Kangal (Karabaş) Dog, but Akbaş is strictly a different breed unlike Kangal (Karabaş) dogs (Koban et al 2003). In the literature there was only one study on Akbaş dogs (Tepeli 2003).

The purpose of this study is to determine some phenotypic traits of TAÇ dogs by minding sex, region, age and coat colour factors by comparing with other dog breeds of Turkey.

## 2. Material and Methods

### 2.1. Experimental Animals

The Akbaş Shepherd dogs in the study (Figure 2) were surveyed between April 2009 and September 2009 in the provinces of Afyon (38° 46' N, 30° 32' E), Ankara (39° 56' N, 32° 51' E), Eskişehir (39° 47' N, 30° 31' E), and Manisa (38° 37' N, 27° 25' E). A total of 59 dogs, 34 male and 25 female, were studied. The dogs were aged between 2 and 10 years, and divided into three age groups: 2-3 years, 4-5 years, and 6-10 years. In the first group there were 15 males and 7 females; in the second group there were 15 males and 9 females; and in the third group there were 4 males and 9 females. The ages of dogs were determined from the information given by their owners.

### 2.2. Measurements

The sampled dogs were weighed for live weight (LW) with a portable spring scale. Linear measures such as height at shoulders (HS), height at rump (HR), body length (BL), and chest depth (CD) were measured using a measuring stick calibrated in centimetres. Other linear measures such as hearth girth circumference (HGC), and cannon circumference (CC) were measured using a graduated plastic tape (Kırmızı 1991).



Figure 2. A juvenile Turkish Akbaş Shepherd dog

### 2.3. Statistical Analysis

The data obtained were analyzed using the Minitab 15 statistical software program. Descriptive statistics for body dimensions were analyzed using ANOVA and Student's T-Test that also determined the impact of sex, country and age group on the response variables of LW, HS, HR, BL, HGC, CD, and CC.

### 3. Results and Discussion

As seen in Table 2 the effects of sex, region, age and coat colour on phenotypic traits were given. There were no significant differences for all morphological traits between male and females. Male dogs yielded higher values than females except for the traits of LW and CC. For those traits female dogs yielded higher values than males. In Table 2 the factors of region on live weight and body dimensions are also given. For the traits of HS, and HR the TAÇ dogs raised in province of Afyon was significantly different from the dogs raised in provinces of Ankara and Eskişehir ( $P<0.01$ ). For the traits of LW, and CD, the TAÇ dogs raised in provinces of Afyon and Manisa were significantly different from the dogs raised in province of Eskişehir ( $P<0.01$ ). For the trait of CC the TAÇ dogs raised in provinces of Eskişehir and Manisa were significantly different from the dogs raised in province of Ankara ( $P<0.05$ ).

For the factor of age, the descriptive statistics and comparison results are also given in Table 2. Among the three age groups, the oldest dog group of 6-10 year-old TAÇ dogs were significantly different from the group of 2-3 and 4-5 year-old dogs for the trait of HS, and 4-5 year old dogs for the traits of HGC ( $P<0.05$ ). After 1 year, there was minor difference for all traits until 6 years of age.

Table 2. Descriptive statistics and comparison results of the phenotypic traits of Turkish Akbaş dogs for different sexes, regions and ages.\*

	Traits	LW (kg)	HS (cm)	HR (cm)	BL (cm)	HGC (cm)	CD (cm)	CC (cm)
Sex	Overall (n=59)	44.9±0.80	75.3±0.59	74.2±0.64	81.8±1.00	86.5±0.81	32.6±0.33	13.3±0.13
	Male (n=34)	44.9±1.07	75.9±0.84	75.0±0.85	82.6±1.46	86.7±1.09	32.6±0.42	13.2±0.20
	Female (n=25)	45.2±1.20	74.4±0.78	73.0±0.94	80.6±1.29	86.2±1.23	32.5±0.55	13.3±0.15
Region	Ankara (n=17)	45.4±1.06 <sup>ab</sup>	76.5±0.83 <sup>b</sup>	76.3±0.72 <sup>b</sup>	82.5±1.18	87.4±1.03	32.5±0.61 <sup>ab</sup>	12.8±0.27 <sup>A</sup>
	Eskişehir (n=22)	48.8±1.31 <sup>b</sup>	76.2±1.06 <sup>b</sup>	74.9±1.06 <sup>b</sup>	82.8±1.88	87.7±1.58	34.1±0.39 <sup>b</sup>	13.6±0.20 <sup>B</sup>
	Afyon (n=12)	40.6±1.55 <sup>a</sup>	72.0±1.22 <sup>a</sup>	70.2±1.67 <sup>a</sup>	76.8±1.79	83.0±1.84	30.8±0.76 <sup>a</sup>	13.0±0.16 <sup>AB</sup>
	Manisa (n=8)	40.3±0.37 <sup>a</sup>	75.0±1.36 <sup>ab</sup>	73.8±1.25 <sup>ab</sup>	84.5±3.31	86.3±1.70	31.2±0.65 <sup>a</sup>	13.6±0.36 <sup>B</sup>
Age	2-3 (n=22)	44.7±0.75	75.8±0.75 <sup>B</sup>	74.5±0.78	83.3±1.49	86.3±1.14 <sup>AB</sup>	33.1±0.40	13.0±0.22
	4-5 (n=24)	46.5±1.56	76.3±1.01 <sup>B</sup>	75.3±1.02	82.8±1.77	88.7±1.24 <sup>B</sup>	32.5±0.61	13.5±0.23
	6-10 (n=13)	42.6±1.66	72.5±1.20 <sup>A</sup>	71.4±1.61	78.9±1.86	82.7±1.76 <sup>A</sup>	31.8±0.74	13.1±0.14

LW: live weight, HS: height at shoulders, HR: height at rump, BL: body length, HGC: hearth girth circumference, CD: chest depth, CC: cannon circumference. There were no significant differences between means showed by the same letters of alphabet in the same line and factor group <sup>a, b</sup>:  $P<0.01$ , <sup>A, B</sup>:  $P<0.05$

It can be concluded that the TAÇ dogs grow up to 2 years of age, and after that there is only minor growth. The oldest dog group yielded lower values than the younger dogs, but it did not mean that dogs lost weight after 5 years of age. One possibility might be that males were the majority in the two younger age group but females were the majority in the oldest dog group, therefore, the values were smaller in body dimensions.

The results obtained in this study (Table 2) were compared with other native dog breeds of Turkey (Table 1). The results showed that the TAÇ, TKnÇ and TKrÇ dogs were almost similar for all traits of body dimensions. But the value of BL was smaller than the other two breeds. It shows that TAÇ has a more compact body structure than the other two breeds. With regard to other small dog breeds of Turkey, TAÇ dogs were twice heavier than Tazı and Çatalburun and four times

heavier than Dikkulak dogs for the trait of live weight. For other traits of HS, HR, BL, HGC, CD and CC, the observed values of TAÇ were higher than results of Tazı, Çatalburun, and Dikkulak dogs. This study values were compared to the values of Tepeli. For the traits of LW, HS, HR, BL, and HGC this study values were higher than the values of Tepeli (Table 1 and 2). The values of Tepeli were belonged to 1 year-old age Akbaş dogs, therefore values of Tepeli might be lower than this study values.

This breed has been started to be used as a livestock guarding dog since 1970s in USA (Coppinger et al 1996, Green and Woodruff 1996). The population number of this breed in USA was about 1.500 as registered Akbaş Dogs in 1996. All Akbaş Dogs were registered under the Akbash Dog Association of America (ASDA) which was established in 1979. This number might be more in this time (Taylor 1996).

Table 3. Phenotypic correlation coefficient values (r) among body measurements in TAÇ dogs.

Traits	LW	HS	HR	BL	HGC	CD
HS	0.67**					
HR	0.70**	0.92**				
BL	0.46**	0.82**	0.74**			
HGC	0.65**	0.81**	0.79**	0.65**		
CD	0.74**	0.46**	0.48**	0.33*	0.44**	
CC	0.35**	0.39**	0.41**	0.44**	0.36**	0.15

\*P<0.05, \*\*P<0.01

At the present time there is no Akbash Shepherd Dog Club or Association in Turkey but in USA. The Akbaş dog is one the genetic resources of Turkey and its number decreases year by year, let alone increase. It is possible that the current population number of Akbaş Dogs in USA is more than in Turkey.

The phenotypic correlation coefficient values summarized in the Table 3 show that almost all observed traits were affected by the others. The highest value was found between HS and HR (r = 0.92) (P<0.01). The other highest values were found between HS and BL (r = 0.82), HS and HGC (r = 0.81), HR and HGC (r = 0.79), LW and CD (r = 0.74) (P<0.01). The correlations of LW-HS, LW-HR, LW-HGC, HR-BL, and BL-HGC also yielded higher values r = 0.50 (P<0.01). The lowest value (r = 0.30) was found between BL and CD (P<0.05). The other low correlation values were found between HR-CD (r = 0.48), LW-BL (r = 0.46), HS-CD (r = 0.46), BL-CC (r = 0.44), HGC-CD (r = 0.44), HR-CC (r = 0.41), HS-CC (r = 0.39), HGC-CC (r = 0.36), and LW-CC (r = 0.35) (P<0.01). There were no significant correlation between the traits of CD-CC and negative correlation among all traits as seen in Table 3.

#### 4. Conclusion

It can be concluded that Turkish Akbaş Shepherd dog is a big size livestock protection dog breed of Turkey. The overall results of the current study demonstrated that Turkish Akbaş Shepherd dogs had a very close resemblance to the other livestock protection dog breeds of TKnÇ and TKrÇ raised in Turkey. These dogs grow up to 2 years of age and after then there is only minor growth. It can be said that Turkish Akbaş Shepherd dog reaches mature body weight and size at around 2 years of age. In USA the ASDA was established in 1979 but in Turkey there was no club or association related with this breed. As Turks we should congratulate both Akbaş Dog breeders and board of directors of ASDA in USA because of being aware of majestic value of this breed. We should appreciate and save this breed for generations.

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